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Incidence of Positive Endometrial Pipelle Biopsies for Endometrial Carcinoma Diagnosis in Patients with Abnormal Uterine Bleeding

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ABSTRACT

Aim: The purpose of the study was to know the pervasiveness of positive endometrial biopsies in pre- and postmenopausal patients with abnormal uterine bleeding for the detection of endometrial cancer.

Study design: A Cross-sectional study.

Place and Duration: In the Obstetrics and Gynaecology Department of Sharif Postgraduate medical institute, Sharif medical city hospital Lahore Pakistan from May 2020 to May 2021.

Methods: Pre- and postmenopausal women 35-70 years of age with abnormal uterine bleeding who met the inclusion and exclusion criteria were selected. A detailed interview and examination were obtained, informed consent, endometrial pipelle biopsy was performed. Each patient's biopsy was marked and sent to the Histopathology department for histopathological examination. A biopsy was considered positive if endometrial carcinoma was detected by histopathological examination and vice versa. Data were analyzed using SPSS version 20.0. For data analysis; Descriptive statistics were used.

Results: Most of the patients (36.2%) belonged to the 35-45 age groups. The analysis of the distribution of births showed that the majority of women were multiparous (52.48%). Only 6.4% of cases were nulliparous. Most of the patients (58.2%) were postmenopausal. The most common symptom was menorrhagia, meaning that in 69.04% of cases; more than 80 ml of blood was lost per cycle in most cases.

The most common histopathological finding in the Pipelle endometrium sample was the secretory endometrium, i.e. in 38.88% of cases.

Conclusion: Pipelle biopsy is certainly a cost effective and beneficial method for identification of Endometrial carcinoma. By this, we can decrease the frequency of D&Cs performed in the operating room. The Pipelle accuracy is greater in postmenopausal women than in premenopausal females.

Key words: Endometrial pipelle biopsy, Abnormal uterine bleeding, Endometrial carcinoma

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INTRODUCTION

The collection of endometrial specimens for histopathological examinations is vital in the valuation of abnormal uterine bleeding, which is a significant problem which accounts for 34% of outpatient gynaecological referrals [1-5]. Its causes cover a wide range of diseases and account for the majority of hysterectomies and almost all endometrial ablation procedures. In the pre-menopausal period, many women with endometrial cancer will have sudden bleeding, but a third will only have heavy periods. Abnormal postmenopausal and Perimenopausal bleeding is related with endometrial cancer in about 12% of patients. Focal benign lesions, such as uterine fibroids and endometrial polyps are common in 18-40% of women. In endometrial cancer, the significance of abnormal bleeding is quite surprising with demographic factors [6]. Endometrial carcinoma is of

particular concern if there is postmenopausal bleeding. However, abnormal bleeding in a premenopausal woman is not a sign of immediate concern about cancer as there are many possible physiological explanations and the incidence of uterine cancer in women under 40 is very low [7]. It is estimated that 3,000 to 4,000 women under 40 with abnormal bleeding should be screened for endometrial cancer. This has an impact on decisions regarding the assessment of AUB. While endometrial cancer occurs in women in their twenties, the vast majority of cases occur in women over the age of 45. Incidence increases rapidly from age 45 to 55, and then remains at the same high level. AUB in females over 35 years of age, and certainly in postmenopausal women, requires evaluation, primarily to exclude cancer and hyperplasia [8,9]. For endometrial sampling; the gold standard method is Dilation and curettage (D&C) but in most cases 60% of the uterine cavity is curetted and there is an additional risk of perforation, infection and general anesthesia. This has directed to a simple and new approaches of endometrial sampling. There are several devices in the market today, including the pipelle curette (Endocurette, Midvale, Utah and USA). The safety and acceptance of this device has been confirmed in many studies [10]. The Pipelle can be used out patiently and is cost effective compared to D&C. The Pipelle technique has been shown to be very sensitive in detecting both atypical hyperplasia and endometrial cancer. It has the advantage that it performs a biopsy at the first treatment visit, and the prompt diagnosis time of carcinoma can be condensed [11]. For endometrial pipelle biopsy, the endometrial cancer detection rate in premenopausal women was 91 and for postmenopausal women was 99.6% with global disease. The atypical hyperplasia detection ratio was 89% with 98-100% specificity. Pipelle had 100% specificity, sensitivity, negative predictive value and positive predictive value in the diagnosis of endometrial cancer, secretory endometrium and hyperplasia [12]. The pipelle is an innocuous device for the collection of an endometrial specimen suitable for histology, with augmented specificity and sensitivity for the recognition of hypertrophy and malignant neoplasm. This study will tell us about the scale of the problem in our population, which will help us change future planning and treatment strategy for endometrial cancer [13]. This study will not only collect national data, but will also be comparable to the international surveys.

PATIENTS AND METHODS

This cross-sectional study was held in the Obstetrics and Gynaecology Department of Sharif Postgraduate medical institute, Sharif medical city hospital Lahore Pakistan from May 2020 to May 2021.

The study included pre- and postmenopausal women with abnormal uterine bleeding and patients aged 35-70 years in gynaecology outside the ward. Postmenopausal women receiving hormone replacement therapy and women taking oral contraceptive pills or tamoxifen were excluded from the study. Pregnant, hypertensive and diabetic patients were also excluded.

The hospital ethics committee was approached. After a detailed interview and examination, the gynecologist gave informed consent to the endometrial tube biopsy after careful consultation with the patient and the relative. The patient was taken to the biopsy room; an endometrial pipette biopsy was taken and stored in a formalin solution.

The Pipelle is a disposable polypropylene sheath with an internal plunger that is used for blind endometrial biopsy. The entire procedure was performed on an outpatient basis by a consultant gynaecologist with at least five years of experience according to a standard protocol. The biopsy taken from each patient was marked and sent for histopathological examination by a consultant histopathology's.

A biopsy was considered positive if endometrial cancer was detected by histopathological examination and vice versa. Regarding the negative and positive biopsy results, the entire patient demographic history and biopsy result were recorded on a previously designed form. Data were analyzed using SPSS version 21. Descriptive statistics were used for data analysis. Quantitative variables such as age, number of deliveries, and amount of abnormal uterine bleeding were calculated from the mean and stripe deviation. Endometrial biopsy rates and percentages (positive, negative) were calculated for qualitative variables, namely cancer, which are outcome variables. Confusing factors such as age, number of deliveries, and amount of abnormal uterine bleeding were checked by a stratification method for the result.

RESULTS

During the one-year study period, i.e., 141 patients were selected who met the inclusion and exclusion criteria. Most of the patients (36.2%) belonged to the 35-45 age groups (Table 1).

Table 1: Age.

Age group (in years)	=n	%age
35-45	51	36.20%
46-55	44	31.20%
56-60	30	21.30%
61-65	10	7.10%
66-70	6	4.30%

The analysis of the distribution of births showed that the majority of women were multiparous (52.48%). Only 6.4% of cases were nulliparous. Most of the patients (58.2%) were postmenopausal. The most common symptom was menorrhagia, meaning that in 69.04% of cases; more than 80 ml of blood was lost per cycle in most cases (Table 2).

Table 2: Parity.

Parity	=n	%age
P0 (Nullipara)	9	6.40%
P1	32	22.70%
P2	35	24.80%
P3 or more	39	27.70%

Bleeding between periods and after intercourse was reported in 22.7% and 12.1% of cases, respectively. The amount of tissue recovered from the pipelle samples was sufficient in 96.82% of the cases and insufficient only in 3.17% of the cases (Table 3).

Table 3: Menopausal status.

Menopausal status	=n	%Age
Pre-menopausal	59	41.80%
Post-menopausal	82	58.20%

The most common histopathological finding in the Pipelle endometrium sample was the secretory endometrium, i.e. in 38.88% of cases. Proliferative endometrium was the second most frequent finding in 34.92% of cases. The analysis of the distribution of births showed that the majority of women were multiparous (52.37%). Of the 141 patients, the majority (58.73%) were postmenopausal (Table 4).

Table 4: Bleeding pattern.

Bleeding pattern	=n	%Age
Intermenstrual bleeding	32	22.70%
Postcoital bleeding	17	12.10%
Menorrhagia	92	65.20%

The most common ailment was menstrual bleeding, i.e. 65.2% of cases. The amount of tissue obtained by pipelle curettage was sufficient in 94.3% of cases (Table 5).

Table 5: Amount of tissue obtained.

Amount of tissue obtained	=n	%Age
Adequate	133	94.30%
Inadequate	8	5.70%

The most common histopathological finding in the Pipelle endometrium sample was the secretory endometrium, i.e. in 38.88% of cases (Tables 6 and Table 7).

Table 6: Histopathology.

Histopathology	Pipelle H/P	%age
Secretory endometrium	52	38.88
Proliferative endometrium	46	34.92
Atrophic Endometrium	8	4.76

Endometritis	11	7.14
Adenomatous hyperplasia	9	5.55
Atypical hyperplasia	6	3.17
Carcinoma endometrium	9	5.55

Table 7: Confounding variables.

Confounding variables	=n	+ve cases	%age
Maternal age in years			
35-45	51	0	0.00%
46-55	44	2	4.50%
56-60	30	4	13.30%
61-65	10	3	30.00%
66-70	6	2	33.30%
Parity			
P0 (Nullipara)	9	0	0.00%
P1	32	2	6.30%
P2	35	4	11.40%
P4 or more	39	4	10.30%
Amount of bleeding			
<80 ml	49	4	8.20%
>80 ml	92	5	5.40%

DISCUSSION

Endometrial sampling is one of the most common diagnostic procedures in gynaecology and by far the primary indication is the evaluation of females with AUB. Previously, the gold standard for sampling of endometrium was dilation and curettage (D&C) under GA. Currently; outpatient endometrial biopsy has substituted D&C as the 1st line analytic test for anomalous uterine bleeding, as both have comparable sensitivity. Analysis of histopathological reports of endometrial curettage showed that 38.88% of cases had secretory mucosa, 34.92% of cases had proliferative endometrium, and 4.76% of cases had adenomatous hyperplasia, atrophic endometrium and carcinoma of endometrium in 5.55% of cases. In a previous study in Pakistan, endometritis was reported in 7.14% of cases, proliferative endometritis in 33% and cystic hyperplasia in 25%. Cystic hyperplasia and proliferative endometrium have been found in women over the age of 40 with hemorrhage. The results of this study are consistent with other studies in Pakistan; This designates that the abnormal vaginal bleeding leading cause is ovulation [14]. The second utmost frequent was benign cyst hyperplasia (21%). Sheetal et al described the endometrium in the proliferating phase as 42%. However, it is lower than reported by Fakhar et al. (42% V / S 54%). In our study, the endometrium in the secretory phase was found in 38.88% of cases. Another 14% reported a highly variable rate of endometrial hyperplasia in the literature. Silander said it was 6.66%. Wentz et al [15]. Reported this as 9% and 10.9% in their study. However, Jyotsana158 reports an incidence of 21% and 22.66%. Sheth and Anuradha et al. recorded a very high incidence of 26% and 28.3%. Comparing the results of this study with others, as mentioned above, shows that the histopathological picture of the endometrium in patients with abnormal uterine bleeding is highly variable irrespective of age, delivery and ethnicity [16]. Although the incidence of endometrial hyperplasia is highly variable, the endometrial cancer incidence is lower in all localized studies. Such an important finding appears to be endometrial hyperplasia with a risk of progression to comorbid cancer, and more research is needed to address and investigate progression from hyperplasia to cancer. In this study, endometrial cancer biopsy was only positive in 5.55% of the cases (Tables 6 and Table 7), but disagreed with others where endometrial cancer was reported as 11.1. %. In a study by Sultan N, the mean age was 56 years. The usual feature was bleeding from the vagina, and the most common histological type was endometrial carcinoma [17]. This study describes one case of endometrial cancer in the premenopausal group and six cases in the postmenopausal group. Another study in Pakistan found adenocarcinoma in a 48-year-old single, premenopausal woman, found almost similar results. In another study, the endometrial cancer detection rate was higher in postmenopausal females than in premenopausal females.

Pipelle was the ideal deivce for both premenopausal and postmenopausal females with detectability of 91% and 99.6% respectively. In 39 (93%) cases, the endometrial biopsy results were constant with the histopathological results of the excised hysterectomy. The PES sensitivity in the endometrial cancer diagnosis is 75% with 100% specificity, negative predictive value 98% and positive predictive value 100%. In another local study, the sensitivity of PES in detecting endometrial cancer and endometrial hyperplasia was 77% and 100, respectively [18]. These results are alike to the Stocx et al study which showed that Pipele's sensitivity in detecting endometrial cancer ranged from 83% to 96%. The PES specificity in detecting endometrial carcinoma/ hyperplasia was 100% and 94% with PMB and AUB. This is similar to the studies by Dijkhuizen et al and Bunyamejchevin et al Showing PES specificity up to 98% and 100% correspondingly in the recognition of endometrial cancer in PMB [19,20]. The PPV for endometrial hyperplasia / cancer is 85 and 100%. % correspondingly. The NPV for endometrial hyperplasia / cancer ranged from 98% to 100%. Macahado et al. Alike results have been described, giving PPV 94.1% and NPP 93.7% 30. A significant number of traditional diagnostic curettage can be used to replace pipette aspiration, which is an inexpensive outpatient procedure [21]. A pipelle biopsy diagnosed six cases of endometrial cancer. Batool et al. Examined 76 cases of PMB with Pipelle biopsies and identified all cases of adenocarcinoma [22]. Considering the various aspects of this study, it is easy to predict that Pipelle is an attractive, useful, and highly reliable endometrial sampling tool. With the results of this study, you can easily trust this endometrial sampling technique.

CONCLUSION

Pipelle biopsy is certainly a cost effective and beneficial method for identification of endometrial carcinoma. By this, we can decrease the frequency of D&Cs performed in the operating room. Due to the soft and flexible tip, it is beneficial in high-risk and obese patients with minimal uterine perforation chances. It has the advantage that it performs a biopsy on the patient's first visit, thus reducing the waiting time for early diagnosis of cancer. The availability of modern techniques in this region requires time to improve the diagnostic and management facilities. Therefore, this sampling technique can be easily trusted on an outpatient basis. However, the hysteroscopic inspection of high-risk patients is highlighted as some changes in the endometrium may be overlooked in PES or even in detailed traditional D&C.

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